Appl. No. 09/990,801
Amdt. Dated 9/28/2004
Reply to Office action of 8/11/2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Currently Amended): An interface device to couple a non-virtual musical instrument to a computing device, the computing device to perform digital signal processing (DSP) on a digitized audio signal of the non-virtual musical instrument received from the interface device to create a processed digital audio signal of the non-virtual musical instrument, the computing device to present a multimedia presentation of a digital audio file to the user and to create a mixed digital signal of both the processed digital audio signal of the musical instrument and the digital audio file, the interface device to cause the mixed digital signal to be converted into analog form for transmission through an analog sound device to the user presenting sound to the user thereby allowing the user to play the non-virtual musical instrument in conjunction with the multimedia presentation, the interface device comprising:

a processor;

an analog to digital (A/D) converter to convert an analog audio signal from the non-virtual musical instrument generated responsive to a user actually playing the non-virtual musical instrument into a digitized audio signal;

a digital to analog (D/A) converter to convert the mixed digital signal of both the processed digital audio signal of the non-virtual musical instrument that is generated responsive to the user actually playing the non-virtual musical instrument and the digital audio file received from the computing device into a mixed analog audio signal; and

a digital audio interface to control timing and formatting of the digitized audio signal of the non-virtual musical instrument actually played by the user and the mixed digital signal;

wherein the processor controls the digital audio interface such that the mixed digital signal is transmitted through the D/A converter and through the analog sound device to the user

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to allow the user to actually play a ~~non-virtual~~ musical instrument in conjunction with the multimedia presentation of the audio file.

Claim 2. (Original): The interface device of claim 1, further comprising a serial input/output (I/O) controller to couple the interface device to the computing device through a serial I/O link.

Claim 3. (Original): The interface device of claim 2, wherein the serial input/output (I/O) controller is a Universal Serial Bus (USB) controller and the interface device is coupled to the computing device through a USB link.

Claim 4. (Original): The interface device of claim 1, further comprising a mixer to include other audio signals for output to the analog sound device.

Claim 5. (Original): The interface device of claim 1, further comprising a volume controller to control the volume of the processed analog audio signal and the analog audio file for output to the analog sound device.

Claim 6. (Original): The interface device of claim 1, wherein the analog sound device includes at least one speaker.

Claim 7. (Currently Amended): The interface device of claim 1, wherein a track associated with the user's ~~non-virtual~~ musical instrument is removed from the digital audio file associated with the multimedia presentation such that the user can play the user's ~~non-virtual~~ musical instrument in conjunction with a multimedia presentation of the audio file that does not include the user's ~~non-virtual~~ musical instrument.

Claim 8. (Original): The interface device of claim 7, wherein the multimedia presentation includes music notation associated with the audio file that is displayed to the user.

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Claim 9. (Currently Amended): The interface device of claim 1, wherein the ~~non-virtual~~ musical instrument is a guitar.

Claim 10. (Original): The interface device of claim 1, wherein the computing device receives the multimedia presentation of the digital audio file from a server through a computer network.

Claim 11. (Previously Presented): The interface device of claim 10, further comprising a security device to identify the interface device as an authorized interface device based upon a unique identifier stored in the security device.

Claim 12. (Original): The interface device of claim 11, wherein the unique identifier stored in the user's security device is the serial number associated with the interface device.

Claim 13. (Original): The interface device of claim 11, wherein the security device stores a user key associated with the interface device.

Claim 14. (Original): The interface device of claim 13, wherein the digital audio file transmitted from the server to the computing device of the user is encrypted with an audio file key associated with the digital audio file and the audio file key is encrypted with the user key for the user and is also transmitted to the computing device.

Claim 15. (Original): The interface device of claim 14, wherein the security device decrypts the audio file key that is encrypted with the user key using the stored user key and transmits the decrypted audio file key to the computing device such that the computing device uses the decrypted audio file key to decrypt the audio file.

Claim 16. (Currently Amended): A method of coupling a ~~non-virtual~~ musical instrument to a computing device to allow a user to actually play a ~~non-virtual~~ musical instrument in

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conjunction with a multimedia presentation, the computing device performing digital signal

processing (DSP) on a digitized audio signal of the musical instrument to create a processed

digital audio signal of the ~~non-virtual~~ musical instrument, the computing device to present a

multimedia presentation of a digital audio file to the user and to create a mixed digital signal of

both the processed digital audio signal of the ~~non-virtual~~ musical instrument and the digital audio

file, the interface device to cause the mixed digital signal to be converted into analog form for

transmission through an analog sound device to the user presenting sound to the user thereby

allowing the user to actually play a ~~non-virtual~~ musical instrument in conjunction with the

multimedia presentation, the method comprising:

converting an analog audio signal from the ~~non-virtual~~ musical instrument generated

responsive to a user actually playing the ~~non-virtual~~ musical instrument into a digitized audio

signal;

transmitting the digitized audio signal of the ~~non-virtual~~ musical instrument that is

generated responsive to the user actually playing the ~~non-virtual~~ musical instrument to the

computing device for digital signal processing for creating a processed digital audio signal of the

~~non-virtual~~ musical instrument;

converting the mixed digital signal of both the processed digital audio signal of the ~~non-~~

~~virtual~~ musical <u>instrument</u> actually played by the user instrument and the digital audio file from

the computing device into a mixed analog audio signal; and

controlling timing and formatting of the digitized audio signal of the ~~non-virtual~~ musical

instrument and the mixed digital signal such that the mixed analog audio signal is properly timed

for transmission through the analog sound device to the user to allow the user to actually play a

~~non-virtual~~ musical instrument in conjunction with the multimedia presentation of the audio file.

Claim 17. (Currently Amended): The method of claim 16, wherein coupling the ~~non-~~

~~virtual~~ musical instrument to the computing device further includes utilizing a serial input/output

(I/O) controller to couple the ~~non-virtual~~ musical instrument to the computing device through a serial I/O link.

Claim 18. (Original): The method of claim 17, wherein the serial input/output (I/O) controller is a Universal Serial Bus (USB) controller and the serial I/O link is a USB link.

Claim 19. (Original): The method of claim 16, further comprising including other audio signals for output to the analog sound device.

Claim 20. (Original): The method of claim 16, wherein the analog sound device includes at least one speaker.

Claim 21. (Currently Amended): The method of claim 16, wherein a track associated with the user's ~~non-virtual~~ musical instrument is removed from the digital audio file associated with the multimedia presentation such that the user can play the user's ~~non-virtual~~ musical instrument in conjunction with a multimedia presentation of the audio file that does not include the user's ~~non-virtual~~ musical instrument.

Claim 22. (Original): The method of claim 21, wherein the multimedia presentation includes music notation associated with the audio file that is displayed to the user.

Claim 23. (Currently Amended): The method of claim 16, wherein ~~non-virtual~~ the musical instrument is a guitar.

Claim 24. (Original): The method of claim 16, wherein the computing device receives the multimedia presentation of the digital audio file from a server through a computer network.

Claim 25. (Original): The method of claim 24, further comprising identifying the user based upon a unique identifier.

Claim 26. (Original): The method of claim 25, wherein the unique identifier is a serial number.

Claim 27. (Original): The method of claim 25, further comprising storing a user key.

Claim 28. (Original): The method of claim 27, wherein the digital audio file transmitted from the server to the computing device of the user is encrypted with an audio file key associated with the digital audio file and the audio file key is encrypted with the user key for the user and is also transmitted to the computing device.

Claim 29. (Original): The method of claim 28, further comprising:

decrypting the audio file key that is encrypted with the user key using the stored user key; and

decrypting the audio file with the decrypted audio file key.

Claim 30. (Currently Amended): A machine-readable medium having stored thereon instructions, which when executed by an interface device, cause the interface device to perform operations, the interface device coupled to a non-virtual musical instrument and to a computing device to allow a user to actually play a non-virtual musical instrument in conjunction with a multimedia presentation, the computing device performing digital signal processing (DSP) on a digitized audio signal of the non-virtual musical instrument to create a processed digital audio signal of the non-virtual musical instrument, the computing device to present a multimedia presentation of a digital audio file to the user and to create a mixed digital signal of both the processed digital audio signal of the non-virtual musical instrument and the digital audio file, the interface device to cause the mixed digital signal to be converted into analog form for transmission through an analog sound device to the user presenting sound to the user thereby

allowing the user to actually play a non-virtual musical instrument in conjunction with the

multimedia presentation, the interface device to perform the following operations comprising:

converting the analog audio signal from the non-virtual musical instrument generated

responsive to a user actually playing the non-virtual musical instrument into a digitized audio

signal;

transmitting the digitized audio signal of the non-virtual musical instrument generated

responsive to the user actually playing the non-virtual musical instrument to the computing

device for digital signal processing for creating a processed digital audio signal of the non-virtual

musical instrument;

converting the mixed digital signal of both the processed digital audio signal of the non-

virtual musical instrument and the digital audio file from the computing device into a mixed

analog audio signal; and

controlling timing and formatting of the digitized audio signal of the non-virtual musical

instrument and the mixed digital signal such that the mixed analog audio signal is properly timed

for transmission through the analog sound device to the user to allow the user to actually play a

non-virtual musical instrument in conjunction with the multimedia presentation of the audio file.

Claim 31. (Currently Amended): The machine-readable medium of claim 30, further

comprising instructions to control a serial input/output (I/O) controller to permit the interface

device to couple the non-virtual musical instrument to the computing device through a serial I/O

link.

Claim 32. (Original): The machine-readable medium of claim 31, wherein the serial

input/output (I/O) controller is a Universal Serial Bus (USB) controller and the serial I/O link is a

USB link.

Claim 33. (Original): The machine-readable medium of claim 30, further comprising instructions for including other audio signals for output to the analog sound device.

Claim 34. (Original): The machine-readable medium of claim 30, further comprising instructions for controlling the volume of the processed analog audio signal and the analog audio file for output to the analog sound device.

Claim 35. (Original): The machine-readable medium of claim 30, wherein the analog sound device includes at least one speaker.

Claim 36. (Currently Amended): The machine-readable medium of claim 30, wherein a track associated with the user's ~~non-virtual~~ musical instrument is removed from the digital audio file associated with the multimedia presentation such that the user can play the user's ~~non-virtual~~ musical instrument in conjunction with a multimedia presentation of the audio file that does not include the user's ~~non-virtual~~ musical instrument.

Claim 37. (Original): The machine-readable medium of claim 30, wherein the multimedia presentation includes music notation associated with the audio file that is displayed to the user.

Claim 38. (Currently Amended): The machine-readable medium of claim 30, wherein the ~~non-virtual~~ musical instrument is a guitar.

Claim 39. (Original): The machine-readable medium of claim 30, wherein the computing device receives the multimedia presentation of the digital audio file from a server through a computer network.

Claim 40. (Original): The machine-readable medium of claim 39, further comprising instructions for identifying the user based upon a unique identifier.

Claim 41. (Original): The machine-readable medium of claim 40, wherein the unique identifier is a serial number.

Claim 42. (Original): The machine-readable medium of claim 40, further comprising storing a user key.

Claim 43. (Original): The machine-readable medium of claim 42, wherein the digital audio file transmitted from the server to the computing device of the user is encrypted with an audio file key associated with the digital audio file and the audio file key is encrypted with the user key for the user and is also transmitted to the computing device.

Claim 44. (Original): The machine-readable medium of claim 43, further comprising instructions for:

decrypting the audio file key that is encrypted with the user key using the stored user key; and

decrypting the audio file with the decrypted audio file key.